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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,563

07/21/2004

Thomas Louis Toth

GEMS 0240 PUS

4562

27256

7590

05/16/2005

ARTZ & ARTZ, P.C.

28333 TELEGRAPH RD.

SUITE 250

SOUTHFIELD, MI 48034

EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/710,563		TOTH ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Hoon Song		2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-20 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/21/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Drawings*

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference numerals 52, 56 and 62 are not shown in figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figure 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segawa (US 2004/0101105A1) in view of Horiuchi (US 2004/0131141A1).

Regarding claims 1, 13 and 20, Segawa teaches a computed tomography assembly or method comprising:

an x-ray gantry assembly (2);

an x-ray source (20) projecting a beam of x-rays;

a detector assembly (24) positioned opposite said x-ray source, said detector assembly receiving said beam of x-rays after said beam of x-rays pass through an object;

a control mechanism (6) in communication with said x-ray source (20) and said detector assembly (24), said control mechanism comprising logic adapted to:

execute at least one scout scan of said object, said at least one scout scan producing a first scout scan image (502, paragraph [0057]);

generate an elliptical patient model based on said first scout scan image (paragraph [0069]);

match said elliptical patient model to a phantom (paragraph [0113]);

generate a dose report based on said phantom; and

display said dose report on a display, said display in communication with said control mechanism; and utilize said elliptical patient model to generate a dose minimized image sequence (paragraph [0125]).

However Segawa fails to teach a phantom diameter approximation.

Horiuchi teaches a phantom diameter approximation determined by input of age and region to be examined (S201, S202, figure 2, paragraph [0037]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the matching of patient model to a phantom of Segawa with the diameter approximation as taught by Horiuchi, since the diameter approximation would provide more accurate x-ray dose without imposing additional work to an imaging operator (column 1 line 1-2).

Regarding claims 2 and 18, Segawa teaches said at least one scout scan comprises two orthogonal scout scans (paragraph [0057]).

Regarding claim 3, Segawa teaches said at least one scout scan comprises: a lateral scout scan; and an anteroposterior scout scan (paragraph [0057]).

Regarding claim 4, Segawa teaches an elevation reference (center values) in communication with said control mechanism; and wherein said logic is adapted to: utilize said elevation reference in combination with said at least one scout scan to generate said elliptical patient model (paragraph [0069] and [0070]).

Regarding claim 7, Segawa teaches said logic is adapted to further comprise: utilizing said elliptical patient model to generate a dose minimized imaging sequence (paragraph [0113]).

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Regarding claims 8 and 14, Segawa teaches said dose report is generated by combining said phantom diameter approximation with said dose minimized imaging sequence (paragraphs [0113], [0114]).

Ec9)

Regarding claims 9 and 15, Segawa teaches dose minimized imaging sequence comprises; adjusting a bowtie element (22) positioned within said x-ray source (20) to minimize radiation exposure to said object (8).

Regarding claims 10 and 16, Segawa teaches dose minimized imaging sequence comprises: adjusting a current modulation of said x-ray source to minimize radiation exposure to said object (paragraph [0109]).

Regarding claims 11 and 17, Segawa teaches dose minimized imaging sequence comprises; calculating object centering information; adjusting a current modulation of said x-ray source to compensate for said object centering information (paragraph [0069], [0099], [0101]).

Regarding claims 12, Segawa teaches dose minimized imaging sequence comprises: calculating object centering information; adjusting a bowtie element positioned within said x-ray source to compensate for said object centering information (paragraph [0069] and [0059]).

Regarding claim 19, Segawa teaches said at least one scan comprises a contour displacement sensor scan (paragraph [0069] and [0059]).

***Allowable Subject Matter***

Claims 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 5, Segawa fails to teach at least one laser position measurement device in communication with said control mechanism; and wherein said logic is adapted to: utilize said laser position measurement device in combination with said at least one scout scan to generate said elliptical patient model as claimed in dependent claim 5.

Regarding claim 6, Segawa fails to teach at least one sonic displacement device in communication with said control mechanism; and wherein said logic is adapted to: utilize said sonic displacement device in combination with said at least one scout scan to generate said elliptical patient model as claimed in dependent claim 6.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Adler et al. (US 6028907) teaches a three-dimensional modeling from scout data but fails to teach the matching to phantom diameter approximation.

Toth (US 5400378) teaches a patient dose optimization method but fails to teach the phantom diameter approximation matching.



Tachizaki et al. (US 2003/0016778A1) teaches a generating an x-ray absorption map based on sonogram data but fails to teach generating an elliptical image.

Yamazaki et al. (US 2004/0013223A1) teaches a method of generating dose efficiency index indicating a diameter of a target but fails to teach the matching to phantom diameter approximation.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HKS

5/4/05  
HKS

  
DAVID V. BRUCE  
PRIMARY EXAMINER